

**Listing of Claims:**

1-25. (Cancelled)

26. (New) A system for conducting a lateral flow assay to detect the presence or quantity of an analyte in a sample, the system comprising:

(a) a membrane strip comprising a detection zone; and

(b) a reading device comprising:

(i) a housing;

(ii) a light barrier structure positioned adjacent to said housing, said light barrier structure defining a receiving port through which said membrane strip is capable of being inserted;

(iii) an electromagnetic radiation source; and

(iv) a sensor capable of detecting the intensity of electromagnetic radiation, wherein the electromagnetic radiation source and sensor are positioned so that electromagnetic radiation emitted from said source is capable of being reflected from said membrane strip to said sensor.

27. (New) The system of claim 26, further comprising a pressure plate that is positioned within said receiving port for bearing against said membrane strip upon insertion.

28. (New) The system of claim 27, wherein the pressure plate is spring loaded.

29. (New) The system of claim 26, further comprising a light absorbing member positioned within said receiving port.

30. (New) The system of claim 29, wherein said light-absorbing member comprises a flexible felt material.

31. (New) The system of claim 26, wherein said light barrier structure defines an aperture through which electromagnetic radiation from said source is capable of passing before contacting said membrane strip.

32. (New) The system of claim 31, wherein said aperture is elongated.

33. (New) The system of claim 31, wherein said aperture is circular.

34. (New) The system of claim 31, wherein said aperture has a size that approximates the size of said detection zone.

35. (New) The system of claim 31, wherein the area of said aperture is 1.8 times or less than the area of said detection zone.

36. (New) The system of claim 31, wherein the area of said aperture is 1.3 times or less than the area of said detection zone.

37. (New) The system of claim 26, wherein said receiving port defines a first stop position for a reference reading and a second stop position for a sample reading.

38. (New) The system of claim 26, wherein a capture reagent is immobilized within the detection zone, the capture reagent being configured to directly or indirectly bind to the analyte.

39. (New) The system of claim 26, wherein the electromagnetic radiation source comprises a light emitting diode.

40. (New) The system of claim 26, wherein the sensor comprises a photodiode.

41. (New) The system of claim 26, further comprising a display for providing results of the assay.

42. (New) A system for conducting a lateral flow assay to detect the presence or quantity of an analyte in a sample, the system comprising:

(a) a membrane strip comprising a detection zone; and

(b) a reading device comprising:

(i) a housing having an exterior surface;

(ii) a light barrier structure formed by a top plate and a bottom plate, said bottom plate being positioned adjacent to the exterior surface of said housing, wherein a receiving port is defined between said top plate and said bottom plate, said membrane strip being capable of insertion into said receiving port;

(iii) an electromagnetic radiation source; and

(iv) a sensor capable of detecting the intensity of electromagnetic radiation, wherein the electromagnetic radiation source and sensor are positioned so that electromagnetic radiation emitted from said source is capable of being reflected from said membrane strip to said sensor.

43. (New) The system of claim 42, further comprising a pressure plate that is positioned in said receiving port between said top plate and said bottom plate for bearing against said membrane strip upon insertion.

44. (New) The system of claim 43, wherein the pressure plate is spring loaded.

45. (New) The system of claim 42, further comprising a light absorbing member positioned within said receiving port.

46. (New) The system of claim 45, wherein said membrane strip is positioned between said light absorbing member and said electromagnetic radiation source when inserted into said receiving port.

47. (New) The system of claim 42, wherein said bottom plate defines an aperture through which electromagnetic radiation from said source is capable of passing before contacting said membrane strip.

48. (New) The system of claim 42, wherein said receiving port defines a first stop position for a reference reading and a second stop position for a sample reading.

49. (New) The system of claim 49, wherein one or more of said stop positions is formed by notches in said bottom plate.

50. (New) The system of claim 42, wherein a capture reagent is immobilized within the detection zone, the capture reagent being configured to directly or indirectly bind to the analyte.